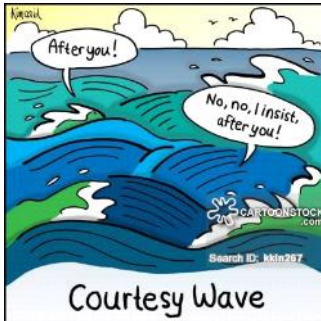


WAVES



- Both particles and waves transmit energy

Mechanical waves

- Need a medium to pass through
- Speed depends only on properties of medium
- e.g. sound waves, waves on a rope, water waves

Electromagnetic waves

- Can travel through a vacuum (no medium required)
- e.g. light, radio, Xrays

Matter waves

- Electrons and other particles show wave-like behaviour under certain conditions
- Quantum mechanics/wave particle duality



Transverse Waves

- Mechanical waves in which the particles of the substance carrying the wave vibrate perpendicular to the direction the wave is traveling
- Have crests and troughs

Longitudinal Waves

- Mechanical waves in which the particles of the substance carrying the wave vibrate in the same direction the wave is traveling
- Have compressions and rarefactions
- e.g. sound waves

Surface Waves

- Mechanical waves
- Mixture of longitudinal and transverse
- Particles of the substance carrying the wave move

- in small circles while the wave moves right to left
- e.g. water waves



Wave pulse

- Single disturbance that travels through a medium

Traveling wave

- Series of pulses at regular intervals